Technical Report Writing

Lecture (4)

By

Dr.Eng/ Hagar Alm El Din

Technical writing can be characterized as follows
(Book Page 6)

- Technical writing deals with <u>technical information.</u>

- Technical writing relies heavily on <u>visuals</u>

- Technical writing uses <u>numerical data</u> to precisely describe quantity and direction.

- Technical writing is <u>accurate</u> and <u>well documented</u>.

- Technical writing is <u>grammatically</u> and <u>stylistically</u> correct.

Key features of reports
(Book Page 14)

- **Designed for quick and easy communication of information**

- **Designed for selective reading**

- **Use sections with numbered headings and subheadings**

- **Use figures and diagrams to convey data.**

Basic structures of reports

Lecture (3)
Important

- **Title Page**
- **Summary**
- **Table of contents**
- **Introduction**
- **Body of the report (Middle sections)**
- **Conclusions**
- **References.**
- **Appendices.**

Refinement of reports
(Book Page 17)

No report is perfect, and definitely not on the first version.

Well written reports are those have gone through multiple rounds of refinements.
Refinements can be self-reading and critical analysis, or more effectively by peer reviewer.

5

Feed back of reports
(Book Page 18)

- **Checks if the title/abstract makes sense are effective/eye-catching.**

- **Are all the relevant questions answered in the introduction?**

- **Is the overall structure of the rest of the sections meaningful?**

- **Is the difference from related/past work crisp and meaningful?**

- **Are the technical sections understandable?**

Feed back of reports
(Book Page 18)

- **Are the figures/tables explained properly?**

- **Are the symbols used defined appropriately?**

- **Are the results explained properly?**

- **Are the conclusions drawn from the graphs/tables sound?**

- **Do the results show how the work presented is better/worse that the other cases of comparison?**

Fill in the blanks with

Yes or No

_____ I have no brains.

Types of Technical Reports

- Proposals
- Laboratory and Project Reports
- Research Report
- Feasibility and Recommendation Reports
- Progress Report

(1) Proposals

Proposals are among the most important documents one can write.

Persons and organizations that write effective proposals win grants, contracts, and jobs; persons and organizations that do not write effective proposals often just wind up "going away"— sometimes "far away."

(1) Proposals

Proposals are specialized, technical business documents that offer **persuasive** {able to persuade/convincing) solutions to problems

A **proposal** also needs to **sell the reader on some idea**— usually that he or she (or his or her organization) needs **specific goods** or services that you (or your organization) can provide.

To be <u>successful</u>, you normally need to do at least three things in any proposal you write:

1- Describe, identify, or refer to a problem that needs to be solved. (add description for the problem to let the reader know you understand the problem)

2- Offer a viable solution to the problem (you have to demonstrate that your proposal solve the problem effectively)

3- Show that you can effectively implement this solution (you must show that you have skills and resources to do what you prposing)

Difference between **Formal** and **Informal** Proposals

- Formal proposals are normally large, comprehensive documents produced by a team of experts on behalf of an organization.

- Formal proposals can take many forms, but a typical one might include the following:

- An executive summary , A technical volume (solution) , A management volume(persons) A cost volume, A resources volume(HR, PR)

- Formal proposals is a difficult type of proposals to write. Evaluated in competitive environment

- Informal proposals are generally short documents of limited scope written by an individuals ,not teams.

- Informal proposals take the form of a long letter or short document)

- Informal proposals also may be either solicited {make requests) or unsolicited.

- With solicited proposal,responds to a specific request. the problem has already been identified, and the decision to solve the problem has already been made.

- Unsolicited proposals often come from within an organization, no one asked for

3

Proposal Checklist

- **Have I defined the problem in great enough detail to ensure that my readers will understand the context for this proposal?**
- Have I described the background for this problem in great enough detail to clearly identify the variables driving my proposed solution?
- **Have I defined in the scope section how I am limiting my proposal?**
- Have I laid out my proposed solution in adequate detail?
- **Do I have enough details to ensure that my solution is credible?**
- Is my time estimate consistent with the tasks in my statement of work?

(2) Progress Report

Progress reports document the status of a project. **Describe** the various tasks that make up the project and **analyze** the progress that has been made toward completing each task.

Generally speaking, in a progress report you need to tell the reader three things:
 The problem you are solving,
The solution you are implementing,
 How well you are doing

Writing a progress report typically requires that you do three things:
         review, describe, and evaluate. **Page(29)**

Progress Reports Outline

Introduction

- *Purpose* — Describe the reason for writing this report.
- *Problem* — Describe the context for this report, including project requirements.
- *Scope* — Describe the limitations of this report.

Background

- *Theory* — Review the theoretical basis for responding to requirements.
- *Research* — Review prior research relevant to requirements.

Test and Evaluation

- *Apparatus* — Describe device(s) used to accomplish the task.
- *Procedure* — Describe procedure(s) used to accomplish the task.

Findings

- *Data* — Review the results of the test and evaluation.
- *Interpretation* — Provide your interpretation of the results, that is, to what extent requirements were met.

Conclusion

- *Assessment* — State your conclusions based on the interpretation(s).
- *Recommendations* — Provide your recommendation(s), if any.

Progress Report Checklist

- **Have I specified the purpose, background, and scope of this report?**
- **Have I referenced the accepted proposal by name, number, and/or date?**
- **Have I reviewed the problem contained in that proposal?**
- **Have I reviewed the proposed solution to that problem?**
- **Have I specified the tasks that will be included in this report?**
- **Have I properly discussed the tasks completed and tasks remaining?**

Lecture Part 2

(3) Feasibility and Recommendation Reports
Book Page 31,33

Feasibility reports and recommendation reports
Are objective documents that <u>identify and evaluate</u> solutions to problems.

These reports address <u>subjects</u> that have well-defined <u>parameters</u>, including <u>a problem</u>, or multiple problems, that can be precisely described; and <u>a solution</u>, or multiple solutions, that can be objectively and empirically <u>tested</u>.

Both recommendation reports and feasibility reports make statements about what <u>action</u> should be taken to solve a problem, resolve a dilemma, or undertake a course of action
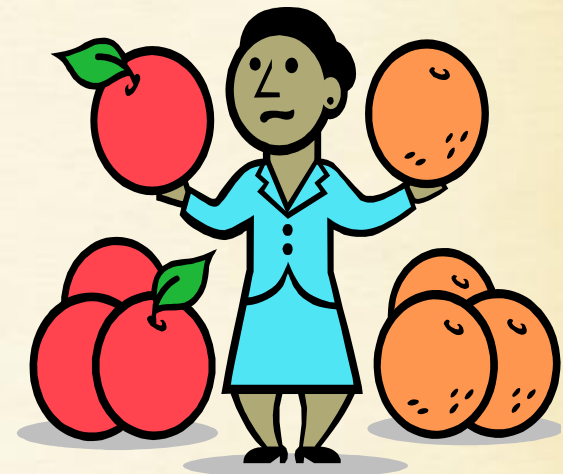
Feasibility reports and recommendation reports
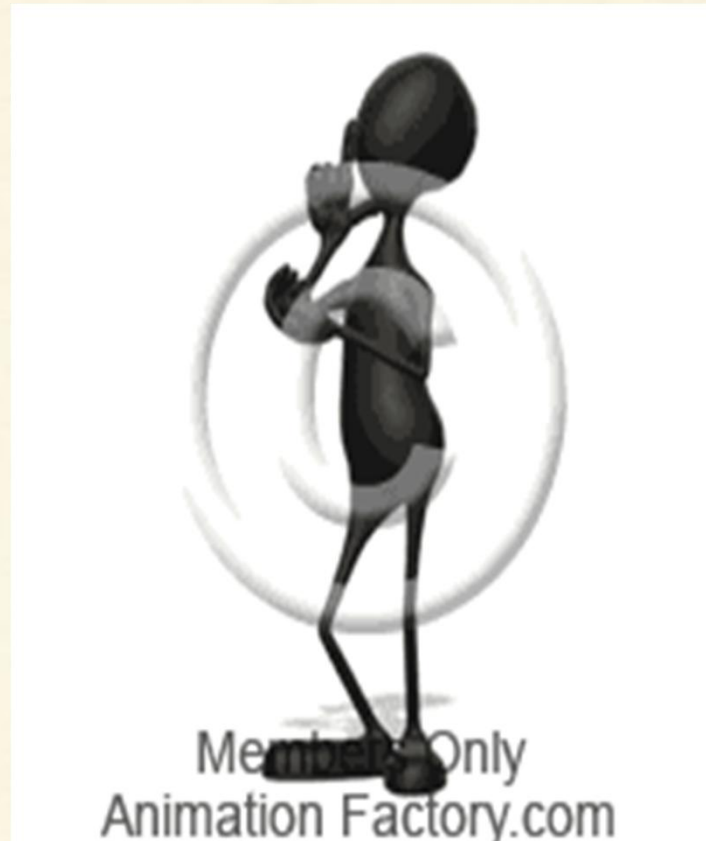**Are unbiased evaluations.**
Frequently their conclusions and recommendations can be used to sell ideas or goods.

Preparing a Recommendation Report

- Start with an introduction/Summary
- Determine audience and purpose
- Describe the situation
- Define the requirements
- List and describe options
- Include any necessary background
- Write a point-by-point comparison
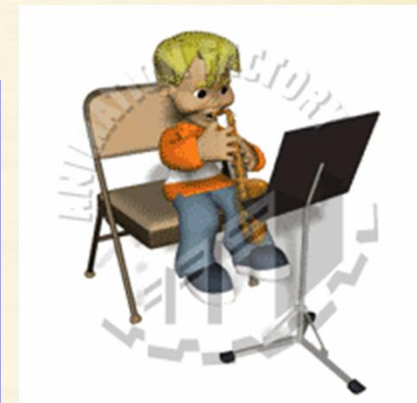- Clearly state the conclusion(s) and recommendation(s)

How Do Feasibility and Recommendation Reports Differ?

Members Only
Animation Factory.com

Feasibility reports consider <u>a single</u> solution to a problem and determine whether or not, or to what extent, the proposed solution is feasible

Recommendation reports, on the other hand, look at several approaches for solving a problem and recommend the most feasible approach.

Recommendation reports are written before a decision is reached. **Feasibility studies**, by contrast, seem often written to assure decision-makers that their initial decisions are workable and sound.

A recommendation report is written when **several** courses of action seem possible, while **a feasibility report** is done after a **tentative decision** has been reached.

Writing Feasibility and Recommendation Reports

- Define a problem that needs to be solved.
- **Identify one or more candidate solutions.**
- Develop a set of criteria by which to objectively evaluate the candidate solution(s).
- **Collect and interpret data for each criterion as it relates to each candidate solution.**
- Draw conclusions and make recommendations regarding the feasibility of the candidate solutions based on your interpretations

Importatnt Links
http://www.uazone.org/friends/esl4rus/libr/writing/feasx1.html
http://wps.pearsoncustom.com/pls_1256647969_pwo/217/55690/14256666.cw/index.html

- Have I explained all criteria, including why they were selected and how much weight each is being given?
- For all criteria, have I collected information (data) that is objective and meaningful?
- Have I provided useful interpretations of this (these data)?
- Have I included a conclusion based on these interpretations?
- Have I made a recommendation based on this conclusion?
- Have I included a contact who can provide more information about this report?
- Have I documented the sources I used for my information?
- Have I included any necessary supporting information in an appendix?

What I if told you
you read the
first line wrong?

See what's trending at FUNsubstance.com

(4) Laboratory and Project Reports
Book Page 38,39

These documents present information that relates to the controlled **testing** of a hypothesis, theory, or device using test equipment (the apparatus) and a specified **series of steps** employed to perform the test (the procedure).

laboratory reports are research oriented documents, meaning that they start with theory that needs to be applied and tested under highly controlled conditions.

Laboratory reports can also take the form of project reports, which are commonly used in teaching laboratories

The laboratory outline provides a model for a research-oriented laboratory report.
The project outline provides a slightly different model for the kind of project report frequently required as part of a **teaching laboratory**.
The goal of the **project report** to demonstrate the application of a theory by using available technology.

In our example page 38, (laboratory outline) will be used to develop a **research laboratory report**. Following that, project outline will be used to produce **a project report**

Laboratory and Project Report Checklist

- **Have I clearly defined the purpose of this report?**
- **Have I clearly described the problem that requires this report?**
- **Have I clearly explained the limitations of this report?**
- **Have I discussed any theory necessary for the reader to understand the report?**
- **Have I reviewed relevant prior research?**
- **Have I described the apparatus I used to collect the data?**
- **Have I described the procedure I used to collect the data?**

Which lines made out of blue squares are parallel?

(5) Research Reports
Page 41

Research reports are similar to research papers that every student has done at one time or another. In technical writing, however, research reports are focused, objective inquiries into technical subjects.

Research reports describe the discovery, analysis, and documentation of knowledge obtained through some type of investigation

Research reports are specifically geared to the purpose at hand, the readers who will use them, the clients who will read them, and whatever limitations have been placed on the scope of the project

Technical Research reports focus on new technologies of investigation, are called **state of the art reports.** Research reports focus on past technology are called **historical reports.**

Research Report Checklist

- **Have I clearly stated the purpose of this report?**
- **Have I introduced the topic with a brief overview of the problem or background?**
- **Have I discussed how I limited the report and my rationale for doing so?**
- **Have I provided adequate background for my reader to understand the report?**
- **Have I provided substantive, well-documented information in the report?**
  Have I included necessary visuals and data?
  Have I summarized my research in the conclusion?

Abstracts and summary
Page 50,51

Technical Report summary:

What does report contain?
Purpose-scope-major issues-
main conclusion.
1 page or less

Scientific Report abstract:
Investigation of report-Problem-
main result- main conclusions.
200 words or less
condensed

Summary:

Should outline all the features of your report, including topic, what you did, how you did it, and the main outcomes from your work.

Summary does not have

- Background information
- why you are doing your research
- refer to diagrams or references

Homework

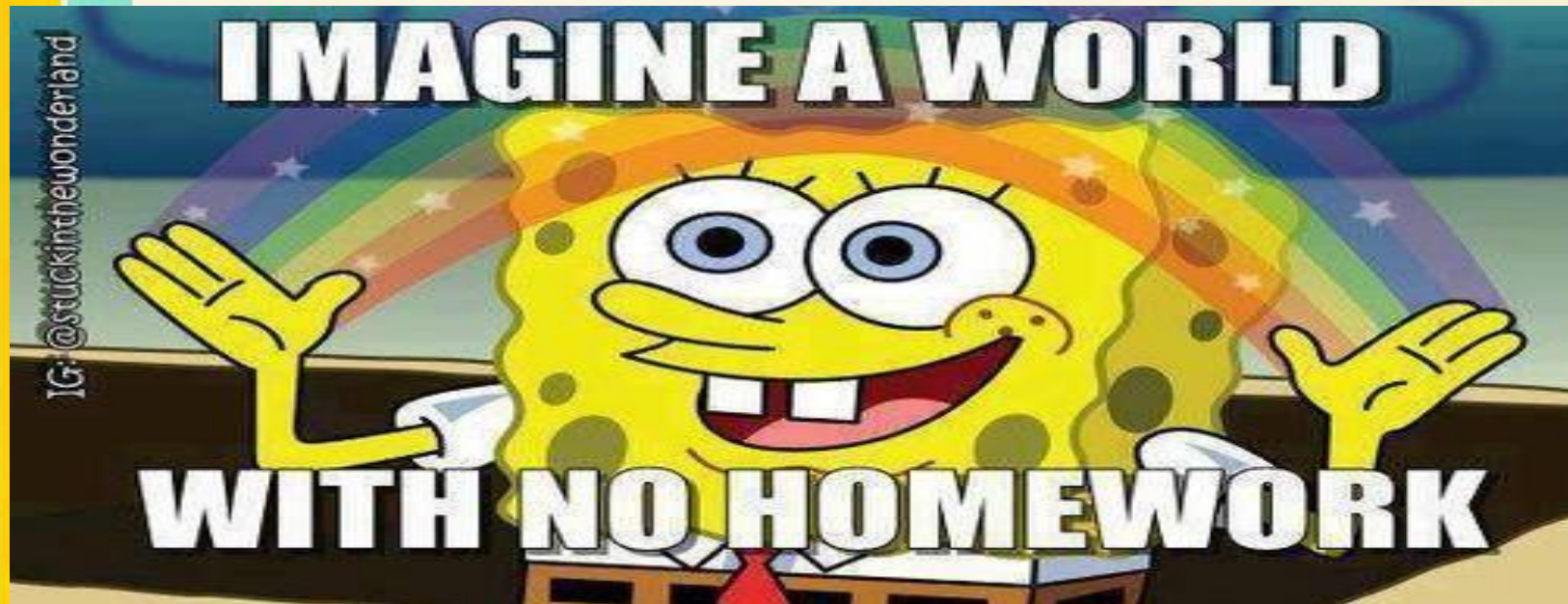**Summarize the difference between:**

Progress report.

Proposal.

Laboratory report.

Recommendation report.

Feasibility report.

Project report.

KEEP CALM AND DO YOUR HOMEWORK

Questions????